(19) World Intellectual Property Organization

International Bureau



(43) International Publication Date 10 June 2004 (10.06.2004)

PCT

(10) International Publication Number WO 2004/048928 A3

(51) International Patent Classification7:

C12Q 1/68

(21) International Application Number:

PCT/US2003/037208

(22) International Filing Date:

20 November 2003 (20.11.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/428,754

25 November 2002 (25.11.2002)

- (71) Applicant (for all designated States except US): THE UNITED STATES OF AMERICA AS REPRESENTED BY THE SECRETARY OF HEALTH AND HUMAN SERVICES, NIH [US/US]; Office of Technology Transfer, 6011 Executive Boulevard, Suite 325, Rockville, MD 20852 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): EMMERT-BUCK, Michael, R. [US/US]; 625 West Sedgwick Street, Philadelphia, PA 19119 (US). CHUAQUI, Rodrigo, F. [CL/US]; 12633 Falconbridge Drive, North Potomac, MD 20878 (US). TANGREA, Michael, A. [US/US]; 2420 Beechnut Place, Odenton, MD 21113 (US).

- (74) Agent: AUERBACH, Jeffrey, I.; Liniak, Berenato & White, LLC, 6550 Rock Spring Drive, Suite 240, Bethesda, MD 20817 (US).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report: 16 September 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD AND APPARATUS FOR PERFORMING MULTIPLE SIMULTANEOUS MANIPULATIONS OF **BIOMOLECULES IN A TWO-DIMENSIONAL ARRAY**

(57) Abstract: This invention relates to methods and apparati for performing multiple simultaneous manipulations of biomolecules in a two-dimensional array, such as a gel, membrane, tissue biopsy, etc. Such manipulations particularly include assays and nucleic acid amplification protocols.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/37208

A. CLASSIFICATION OF SUBJECT MATTER					
IPC(7) : C12Q 1/68 US CL : 435/6					
According to International Patent Classification (IPC) or to both national classification and IPC					
B. FIEL	DS SEARCHED	_			
Minimum documentation searched (classification system followed by classification symbols) U.S.: 435/6, 435/91.2, 435/7.1, 435/4, 436/518					
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched					
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Please See Continuation Sheet					
C. DOCUMENTS CONSIDERED TO BE RELEVANT					
Category *	Citation of document, with indication, where appropriate, of the relevant passages			Relevant to claim No.	
Y	US 2004/0053326 A1 (EMMERT-BUCK et al.) 18 March 2004 (18.03.2004), page 2 col. 1-24				
Y	1, examples 2, 3 and 5. US 2004/0081987 A1 (KNEZEVIC et al.) 29 April 2004 (29.04.2004), pages 3-5,			1-24	
Y	example 11. US 2004/0081979 A1 (KNEZEVIC et al.) 29 April 2004 (29.04.2004), Fig 11, page 7 col. 2, page 14, page 15 col. 2.			1-24	
<u> </u>	documents are listed in the continuation of Box C.	<u> </u>	See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance		w.L.o	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention		
1	plication or patent published on or after the international filing date	"X"	document of particular relevance; the considered novel or cannot be conside when the document is taken alone		
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)		«ү»	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination		
"O" document referring to an oral disclosure, use, exhibition or other means			being obvious to a person skilled in th		
"P" document published prior to the international filing date but later than the priority date claimed		*&*	, document member of the same patent		
Date of the actual completion of the international search 18 June 2004 (18.06.2004)		Date of	2004 Subject the international see	arch report	
			zed officer		
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450		Heather Calamita 4. Roberts Jos			
P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 872-9306			ne No. 571.272.1600		

Form PCT/ISA/210 (second sheet) (July 1998)

	PCT/US03/37208	
INTERNATIONAL SEARCH REPORT	1 01/0000/5/200	
III ERIMIIUIME SEARCH REFURI	.	
	•	
	!	
	·	
Continuation of B. FIELDS SEARCHED Item 3:		
CAPITIS MEDITINE		
CAPLUS, MEDLINE Layered expression scanning, transcriptome, array		
Enjoyee expression semining, amount come, and		
<u> </u>		
1		
	•	
	•	

Form PCT/ISA/210 (second sheet) (July 1998)